



AN ENVIRONMENTAL ANALYTICAL LABORATORY

## COMPREHENSIVE VALIDATION PACKAGE

ATL Applications

INVENTORY SHEET

WORK ORDER # 0909547A

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Completed by:

*Kara McKiernan*

(Signature)

Kara McKiernan/ Document Control

(Print Name & Title)

10/15/09

(Date)

**WORK ORDER #: 0909547A**

**Work Order Summary**

<b>CLIENT:</b>	Mr. Taeko Minegishi Environmental Health & Engineering, Inc. 117 Fourth Avenue Needham, MA 02494	<b>BILL TO:</b>	Accounts Payable Environmental Health & Engineering, Inc. 117 Fourth Avenue Needham, MA 02494
<b>PHONE:</b>	800-825-5343	<b>P.O. #</b>	16512
<b>FAX:</b>	781-247-4305	<b>PROJECT #</b>	16512
<b>DATE RECEIVED:</b>	09/25/2009	<b>CONTACT:</b>	Ausha Scott
<b>DATE COMPLETED:</b>	10/14/2009		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>
01A	103166	ATL Applications
02A	103167	ATL Applications
03A	103168	ATL Applications
03AA	103168 Lab Duplicate	ATL Applications
04A	103170	ATL Applications
05A	103171	ATL Applications
06A	103195	ATL Applications
07A	103196	ATL Applications
08A	103197	ATL Applications
08AA	103197 Lab Duplicate	ATL Applications
09A	103198	ATL Applications
10A	103199	ATL Applications
11A	103200	ATL Applications
12A	106669	ATL Applications
13A	106670	ATL Applications
14A	106671	ATL Applications
15A	106672	ATL Applications
16A	Lab Blank	ATL Applications

Continued on next page

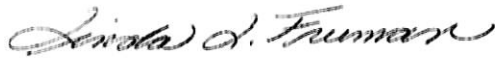
**WORK ORDER #: 0909547A**

**Work Order Summary**

<b>CLIENT:</b>	Mr. Taeko Minegishi Environmental Health & Engineering, Inc. 117 Fourth Avenue Needham, MA 02494	<b>BILL TO:</b>	Accounts Payable Environmental Health & Engineering, Inc. 117 Fourth Avenue Needham, MA 02494
<b>PHONE:</b>	800-825-5343	<b>P.O. #</b>	16512
<b>FAX:</b>	781-247-4305	<b>PROJECT #</b>	16512
<b>DATE RECEIVED:</b>	09/25/2009	<b>CONTACT:</b>	Ausha Scott
<b>DATE COMPLETED:</b>	10/14/2009		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>
16B	Lab Blank	ATL Applications
17A	CCV	ATL Applications

CERTIFIED BY:



Laboratory Director

DATE: 10/14/09

This report shall not be reproduced, except in full, without the written approval of Air Toxics Ltd.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630  
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**LABORATORY NARRATIVE**  
**Ozone by Radiello 172**  
**Environmental Health & Engineering, Inc.**  
**Workorder# 0909547A**

Fifteen Radiello 172 (Ozone) samples were received on September 25, 2009. The procedure involves reaction of 4-pyridylaldehyde with 3-methyl-2-benzothiazolinone hydrazone to yield the corresponding azide. The absorbance is then measured at 430 nm using a spectrophotometer. Results are reported in uG and uG/m<sup>3</sup>.

Sampling rate of 24.6 mL/min was provided by the manufacturer.

**Receiving Notes**

There were no receiving discrepancies.

**Analytical Notes**

Results were calculated based on 25 deg C without temperature correction. The actual exposure time was used to calculate sample concentrations and reporting limits.

An exposure time of 20160 minutes was used for the QC samples.

All media used for the sampling were supplied by the client. Blank subtraction was not performed on the sample results since the media used for Method Blanks may be from a different lot than the media used for the samples.

**Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicate as follows:

- B - Compound present in laboratory blank greater than reporting limit.
- J - Estimated value.
- E - Exceeds instrument calibration range.
- S - Saturated peak.
- Q - Exceeds quality control limits.
- U - Compound analyzed for but not detected above the detection limit.
- M - Reported value may be biased due to apparent matrix interferences.
- N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

- a-File was requantified
- b-File was quantified by a second column and detector
- r1-File was requantified for the purpose of reissue

## **Sample Results and Raw Data**

# AIR TOXICS LTD.

ATL Application # 62 for RAD 172 (Ozone)

Spectrophotometer

Field Sample I.D.	Lab Sample I.D.	Collection Date	Analysis Date	Dilution Factor	Reporting Limit (ug)	Reporting Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
103166	0909547A-01A	9/21/2009	9/28/2009	1.00	0.64	1.3	ND	ND
103167	0909547A-02A	9/21/2009	9/28/2009	1.00	0.64	1.3	ND	ND
103168	0909547A-03A	9/21/2009	9/28/2009	1.00	0.64	1.3	6.1	12
103168 Lab Duplicate	0909547A-03AA	9/21/2009	9/28/2009	1.00	0.64	1.3	6.2	12
103170	0909547A-04A	9/21/2009	9/28/2009	1.00	0.64	1.3	ND	ND
103171	0909547A-05A	NA	9/28/2009	1.00	0.64	1.3	ND	ND
103195	0909547A-06A	9/21/2009	9/28/2009	1.00	0.64	1.4	ND	ND
103196	0909547A-07A	9/21/2009	9/28/2009	1.00	0.64	1.4	ND	ND
103197	0909547A-08A	9/21/2009	9/28/2009	1.00	0.64	1.4	11	23
103197 Lab Duplicate	0909547A-08AA	9/21/2009	9/28/2009	1.00	0.64	1.4	11	23
103198	0909547A-09A	9/21/2009	9/28/2009	1.00	0.64	1.4	ND	ND
103199	0909547A-10A	9/21/2009	9/28/2009	1.00	0.64	1.4	ND	ND
103200	0909547A-11A	NA	9/28/2009	1.00	0.64	1.3	ND	ND
106669	0909547A-12A	9/21/2009	9/28/2009	1.00	0.64	1.4	ND	ND
106670	0909547A-13A	9/21/2009	9/28/2009	1.00	0.64	1.4	ND	ND
106671	0909547A-14A	9/21/2009	9/28/2009	1.00	0.64	1.4	11	24
106672	0909547A-15A	9/21/2009	9/28/2009	1.00	0.64	1.4	ND	ND
Method Blank	0909547A-16A	NA	9/28/2009	1.00	0.64	1.3	ND	ND
Method Blank	0909547A-16B	NA	9/28/2009	1.00	0.64	1.3	ND	ND
CCV	0909547A-17A	NA	9/28/2009	1.00	0.64	1.3	%Rec 99	

COMMENTS: 1. NA=Not Applicable

2. ND=Not Detected

3. Exposure time of 20160 minutes was assumed for the QC samples.

4. Background subtraction not performed.

# Ozone Radiello Calculation Worksheet

Workorder #: **0909547A**  
 Sampling Rate (mL/min): 24.6 Typically 24.6 for Ozone  
 Sampling T (deg C): 25 Typically 25  
 Volume (mL): 5 Typically 5 for Ozone  
 Date of Analysis: 9/28/2009

$(Abs-Y-int) \times DF$   
 Slope

$Conc (\mu g) \times 1000000$   
 $Q \times Duration$

Low Point $\times$ DF

LabSampleID	Client	Date of Collection	Abs	Duration (min)	DF	Ozone Conc (ug)	Conc (ug/m3)	RL(ug)
01A	103166	9/21/2009	0.045	20160	1.00	0.357177862	0.720	0.638
02A	103167	9/21/2009	0.066	20160	1.00	0.542818803	1.095	0.638
03A	103168	9/21/2009	0.698	20160	1.00	6.129727125	12.360	0.638
03AA	103168 Lab Duplicate	9/21/2009	0.703	20160	1.00	6.173927349	12.449	0.638
04A	103170	9/21/2009	0.048	20160	1.00	0.383697997	0.774	0.638
05A	103171	NA	0.021	20160	1.00	0.145016787	0.292	0.638
06A	103195	9/21/2009	0.022	18720	1.00	0.153856832	0.334	0.638
07A	103196	9/21/2009	0.023	18720	1.00	0.162696877	0.353	0.638
08A	103197	9/21/2009	1.217	18720	1.00	10.71771038	23.273	0.638
08AA	103197 Lab Duplicate	9/21/2009	1.228	18720	1.00	10.81495088	23.485	0.638
09A	103198	9/21/2009	0.029	18720	1.00	0.215737145	0.468	0.638
10A	103199	9/21/2009	0.033	18720	1.00	0.251097325	0.545	0.638
11A	103200	NA	0.025	20160	1.00	0.180376966	0.364	0.638
12A	106669	9/21/2009	0.036	18720	1.00	0.277617459	0.603	0.638
13A	106670	9/21/2009	0.025	18720	1.00	0.180376966	0.392	0.638
14A	106671	9/21/2009	1.281	18720	1.00	11.28347325	24.502	0.638
15A	106672	9/21/2009	0.028	18720	1.00	0.206897101	0.449	0.638
					1.00	-0.040624154	#DIV/0!	0.638
					1.00	-0.040624154	#DIV/0!	0.638
					1.00	-0.040624154	#DIV/0!	0.638
					1.00	-0.040624154	#DIV/0!	0.638
					1.00	-0.040624154	#DIV/0!	0.638
16A	Method Blank	NA	0.017	20160	1.00	0.109656608	0.221	0.638
16B	Method Blank	NA	0.019	20160	1.00	0.127336697	0.257	0.638
17A	CCV	NA	0.291	20160	1.00	-0.040624154	#DIV/0!	0.638
					1.00	2.531828886	5.105	0.638

QC Duration  
20160

CCV Spike Amt  
2.5536



RL (ug) x 1000000  
Q x Duration

Calibration Data

Date of Calibration  
9/28/2009 Linear Regression

4-PA  
ug/ml\*0.224\*0.5ml

RL (ug/m3)	Result (ug)	Result (ug/m3)	%Rec	4-PA		absorbance	Slope
				ug/ml	ug Ozone		Y-int
1.287	ND	ND		0	0	0	0.113121598
1.287	ND	ND		5.7	0.6384	0.073	0.004595469
1.287	6.12977125	12.35991564		11.4	1.2768	0.152	0.99963407
1.287	6.173927349	12.4490405		22.8	2.5536	0.292	
1.287	ND	ND		57	6.384	0.731	
1.287	ND	ND		114	12.768	1.447	
1.386	ND	ND		hand entry			
1.386	10.71771038	23.27346602					
1.386	10.81495088	23.48462337					
1.386	ND	ND					
1.386	ND	ND					
1.386	ND	ND					
1.386	ND	ND					
1.386	11.28347325	24.50201787					
1.386	ND	ND					
#DNV/0i	ND	#DNV/0i					
#DNV/0i	ND	#DNV/0i					
#DNV/0i	ND	#DNV/0i					
#DNV/0i	ND	#DNV/0i					
#DNV/0i	ND	#DNV/0i					
1.287	ND	ND					
1.287	ND	ND					
#DNV/0i	2.531828886	#DNV/0i	%Rec				
1.287		5.105152452	99				



## QC Results and Raw Data

Work Order: 0909547A

Date: 9/28/09

Method: Rad 172

Analyst: M. Skidmore

Wavelength: 430 nm

Standard ID	Concentration	ABS
	(Concentration of 4-PA)	
Level 1 1858-55 - E	5.7 µg/mL	0.073
Level 2 - D	11.4 µg/mL	0.152
Level 3 - C	22.8 µg/mL	0.292
Level 4 - B	57 µg/mL	0.731
Level 5 - A	114 µg/mL	1.447
ICV 1858-57	22.8 µg/mL	0.273

$$r = 0.9999$$

$$m = 0.1131$$

$$b = 0.004595$$

ICV % Recovery = 93%

Fraction	Dilution	ABS	Sample ID	Sample Volume	Comments
01A	1.00	0.045	103166	5.0 mL	
02A		0.066	103167		
03A		<del>0.068</del> 0.698	103168		
03AA		0.703	103168		
04A		0.048	103170		
05A		0.021	103171		
06A		0.022	103195		
07A		0.023	103196		
08A		1.217	103197		
08AA		1.228	103197		
09A		0.029	103198		
10A		0.033	103199		
11A		0.025	103200		
12A		0.036	106669		
13A		0.025	106670		
14A		1.281	106671		
15A		0.028	106672		
BLK		0.017	N/A		
BLK		0.019			
CCV LGS		0.268			
CCV		0.291			
MJS 10/5/09					

Procedure:

*Phil Skidmore*  
Signed

10/5/09  
Date

# Spectrophotometer Standard Preparation Log

@Air Toxics Ltd. Log Book #: 1858

Standard ID: 1858-54

Project: Rad 172 MBTH Solution

Analyst: M. Skidmore

Preparation Date: 2/28/0 <sup>MS 9/28/09</sup> 9/28/09

Expiration Date: 9/28/09

Solvent: D.I. H<sub>2</sub>O

Solvent Lot #: N/A

Procedure/Comments: Dissolve 2.5 g of 3-methyl-2-benzothiazolinone  
hydrazone hydrochloride hydrate, (97% (1476-1106, located in ERIA)  
into 500 mL DI H<sub>2</sub>O and add 2.5 mL of concentrated  
sulfuric acid

*[A large handwritten 'X' is drawn across the middle of the page, indicating the procedure is complete or the standard is not to be used.]*

MS  
9/28/09

# Spectrophotometer Standard Preparation Log

@Air Toxics Ltd.

Log Book #: 1858

Standard ID: 1858-55

Project: Rad 172 Calibration Solution

Analyst: M. Skidmore

Preparation Date: 9/28/09

Expiration Date: 9/28/09

Solvent: DI H<sub>2</sub>O

Solvent Lot #: N/A

Procedure/Comments: \_\_\_\_\_

\_\_\_\_\_ Dissolve 20  $\mu$ l of 4-Pyridine-carboxaldehyde, 97% (1476-1103, located F22H) in 200mL  
\_\_\_\_\_ D.I. H<sub>2</sub>O. From this solution prepare dilutions at 1:2, 1:5, 1:10, 1:20. Stock Solution =  
\_\_\_\_\_ 114  $\mu$ g/mL.

\_\_\_\_\_ 1:2) 250  $\mu$ l Pyridine solution with 250  $\mu$ l of D.I. H<sub>2</sub>O = 57  $\mu$ g/mL.

\_\_\_\_\_ 1:5) 100  $\mu$ l Pyridine solution with 400  $\mu$ l of D.I. H<sub>2</sub>O = 22.8  $\mu$ g/mL.

\_\_\_\_\_ 1:10) 100  $\mu$ l Pyridine solution with 900  $\mu$ l of D.I. H<sub>2</sub>O = 11.4  $\mu$ g/mL

\_\_\_\_\_ 1:20) 250  $\mu$ l Pyridine 1:10 solution with 250  $\mu$ l of D.I. H<sub>2</sub>O = 5.7  $\mu$ g/mL  
\_\_\_\_\_ (Then remove 250  $\mu$ l of 1:10 solution to yield a final volume of 0.5 mL)

\_\_\_\_\_ Then add 4.5 mL of MBTH solution to each level, stir and let stand for 1 hour (cover  
\_\_\_\_\_ with parafilm). Then read absorbance at 430 nm.

\_\_\_\_\_ Note: 1  $\mu$ g of 4-pyridylaldehyde = 0.224  $\mu$ g of ozone.

MJS 9/28/09

MJS  
9/28/09

# Spectrophotometer Standard Preparation Log

@Air Toxics Ltd. Log Book #: 1858

Standard ID: 1858-57

Project: ICV RAS 172

Analyst: W

Preparation Date: 9/28/09

Expiration Date: 9/28/09

Solvent: D.I. H<sub>2</sub>O

Solvent Lot #: NA

Procedure/Comments: \_\_\_\_\_

\_\_\_\_\_ Dissolve 20  $\mu$ l of 4-Pyridine-carboxaldehyde, 97% (1476-1103, located F22H) in 200mL  
\_\_\_\_\_ D.I. H<sub>2</sub>O. Stock Solution = 114  $\mu$ g/mL. From this solution prepare a dilution at:

\_\_\_\_\_ 1:5) 100  $\mu$ l Pyridine solution with 400  $\mu$ l of D.I. H<sub>2</sub>O = 22.8  $\mu$ g/mL.

\_\_\_\_\_ Then add 4.5 mL of MBTH solution to each level, stir and let stand for 1 hour (cover  
\_\_\_\_\_ with parafilm). Then read absorbance at 430 nm.

\_\_\_\_\_ Note: 1  $\mu$ g of 4-pyridylaldehyde = 0.224  $\mu$ g of ozone.

## **Shipping/ Receiving Documents**

**180 Blue Ravine Road, Suite B  
Folsom, CA 95630**

**Phone (916) 985-1000 FAX (916) 985-1020  
Hours 8:00 A.M. to 6:00 P.M. Pacific**

COMPANY: Environmental Health & Engineering, Inc.  
ATTENTION: Mr. Taeko Minegishi  
FAX #: 781-247-4305  
FROM: Sample Receiving  
Workorder #: 0909547A  
# of pages (Including Cover): 4

10/15/2009

Thank you for selecting Air Toxics Ltd. We have received your samples and have found discrepancies. In order to expedite analysis and reporting, please review the attached information for accuracy.

Corrections can be faxed to **Ausha Scott at 916-985-1020.**

ATL will proceed with the analysis as specified on the Chain of Custody and Sample Login page.

In accordance with your company's contract, this account is required to have a PO that is fully executed by both parties which also covers the cost of the workorder before any data can be released. Please ensure that you have given all appropriate information to our Project Manager so that there will be no delay in reporting of the data you are requesting.

*Your prompt response is appreciated.*



DATE: 9/24/09

FROM: Environmental Health and Engineering, Inc.  
117 Fourth Avenue  
Needham, MA 02494-2725

0909547

TO: AIR TOXICS

Please send invoices to ATTN: Accounts Payable  
Please send reports to ATTN: Data Coordinator

In all correspondence regarding this matter, please refer to EH&E Project # 16512

The cost of this analysis will be covered by EH&E Purchase Order # 16512

For EH & E Data Coordinator - URGENT DATA ☒

SAMPLE ID	SAMPLE TYPE	ANALYTICAL METHOD/NUMBER	START	OTHER: Time/Date/Vol.	STOP
103166	AIR/PASSIVE	OZONE ANALYSIS	9/7/09	9/21/09	
103167					
103168					
<del>103169</del>					Voided
103170					
103171					
103195			9/8/09	9/21/09	
103196					
103197					
103198					
103199					
103200					
106669			9/8/09	9/21/09	
106670					
106671					
106672					

Special Instructions:

☒ Standard turn around time

☐ Rush by \_\_\_\_\_ date/time

☐ Fax results 781-247-4305

☐ RETURN SAMPLES

☒ Electronic transfer - datacoordinator@ehinc.com

☒ Additional report recipient mfragala@ehinc.com

Red ex  
CUSTODY SEAL INTACT?  
Y N NOND TEMP 42

Each signatory please return one copy of this form to the above address

Relinquished by: [Signature] of Environmental Health & Engineering, Inc. Date: 9/24/09

Received by: [Signature] of (company name) AH Date: 9/25/09

Relinquished by: \_\_\_\_\_ of (company name) \_\_\_\_\_ Date: \_\_\_\_\_

Received by: \_\_\_\_\_ of (company name) \_\_\_\_\_ Date: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ of (company name) \_\_\_\_\_ Date: \_\_\_\_\_

Received by: \_\_\_\_\_ of (company name) \_\_\_\_\_ Date: \_\_\_\_\_

Lab Data

Received by: \_\_\_\_\_ of Environmental Health & Engineering, Inc. Date: \_\_\_\_\_

Page 1 of 4

## SAMPLE RECEIPT SUMMARY

**WORKORDER 0909547A**

**Client**

Mr. Taeko Minegishi  
Environmental Health &  
Engineering, Inc.  
117 Fourth Avenue  
Needham, MA 02494

**Phone**

800-825-5343

**Fax**

781-247-4305

**Date Promised:** 10/06/09 11:59 pm

**Date Completed:** 10/14/09

**Date Received:** 9/25/09

**PO#:** 16512

**Project#:** 16512

**Sales Rep:** TL

**Total \$:** \$ 825.00

**Logged By:** MG

<u>Fraction</u>	<u>Sample #</u>	<u>Analysis</u>	<u>Collected</u>	<u>Amount\$</u>
01A	103166	ATL Applications	9/21/2009	\$50.00
02A	103167	ATL Applications	9/21/2009	\$50.00
03A	103168	ATL Applications	9/21/2009	\$50.00
03AA	103168 Lab Duplicate	ATL Applications	9/21/2009	\$0.00
04A	103170	ATL Applications	9/21/2009	\$50.00
05A	103171	ATL Applications	NA	\$50.00
06A	103195	ATL Applications	9/21/2009	\$50.00
07A	103196	ATL Applications	9/21/2009	\$50.00
08A	103197	ATL Applications	9/21/2009	\$50.00
08AA	103197 Lab Duplicate	ATL Applications	9/21/2009	\$0.00
09A	103198	ATL Applications	9/21/2009	\$50.00
10A	103199	ATL Applications	9/21/2009	\$50.00
11A	103200	ATL Applications	NA	\$50.00
12A	106669	ATL Applications	9/21/2009	\$50.00
13A	106670	ATL Applications	9/21/2009	\$50.00
14A	106671	ATL Applications	9/21/2009	\$50.00
15A	106672	ATL Applications	9/21/2009	\$50.00
16A	Lab Blank	ATL Applications	NA	\$0.00
16B	Lab Blank	ATL Applications	NA	\$0.00
17A	CCV	ATL Applications	NA	\$0.00

**Note:** Samples received after 3 P.M. PST are considered to be received on the following work day.  
Atlas Project Name/Profile#: CPSC Indoor Air Monitoring/13297

**BILL TO:** Accounts Payable  
Environmental Health & Engineering, Inc.  
117 Fourth Avenue  
Needham, MA 02494

Analysis Code: Other GC

**TERMS:**

Reporting Method: ATL Application #62 Ozone-Radiello 172

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630  
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

## SAMPLE RECEIPT SUMMARY Continued

Client

Phone

Date Promised:

Date Completed:

Date Received:

Fax

PO#:

Project#:

Sales Rep:

Total \$: \$ 825.00

Logged By: MG

<u>Fraction</u>	<u>Sample #</u>	<u>Analysis</u>	<u>Collected</u>	<u>Amount\$</u>
Misc. Charges eCVP (15) @ \$5.00 each.				\$75.00

**Note:** Samples received after 3 P.M. PST are considered to be received on the following work day.  
Atlas Project Name/Profile#: CPSC Indoor Air Monitoring/13297

**BILL TO:** Accounts Payable  
Environmental Health & Engineering, Inc.  
117 Fourth Avenue  
Needham, MA 02494

Analysis Code: Other GC

**TERMS:**

Reporting Method: ATL Application #62 Ozone-Radiello 172

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630  
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

## Other Records

Method : ATL Application #62 Ozone-Radiello 172

CAS Number	Compound	Rpt. Limit (ug)
10028-15-6	Ozone	1.0

## DATA REVIEW CHECKLIST

Work Order #:

0909547A

A<sub>1</sub> A<sub>2</sub> R T M Q☐ ☐ ☒ ☐ ☒ ☐

Analysis/Reporting vs. Project Profile/SOP requirements checked (i.e. 100% Dups, J-Flag to MDL, etc)

The final report has the correct reporting list, special units, and header info.

Lab Narrative is correct (proper method &amp; description/Receiving &amp; Analytical notes correct)

Sample Discrepancy Report (SDR) is completed

☐ ☐ ☒ ☐ ☐ ☐

Corrective Action issued - #

☐ ☐ ☐ ☐ ☐ ☐

Unusual circumstances have been documented in the notes section below

LUMEN validation report present and initialed

CIRCLE (YES / NO)

☐ ☐ ☒ ☐ ☒ ☐

Lab Blank, CCV, LCS and DUP met QC criteria

☐ ☐ ☒ ☐ ☒ ☐

Hold time is met for all samples

☐ ☐ ☒ ☐ ☒ ☐

Appropriate data qualifier flags are applied

☐ ☐ ☒ ☐ ☒ ☐

Manual integrations for samples and QC are properly documented

☐ ☐ ☒ ☐ ☐ ☐

Samples analyzed within the project or method specific clock

☐ ☐ ☒ ☐ ☐ ☐

Retention times have been verified

☐ ☐ ☒ ☐ ☐ ☐

Appropriate ICAL(s) included

☐ ☐ ☐ ☒ ☐ ☐

At least one result per sample is verified against the target quant sheets/raw data

☐ ☐ ☒ ☐ ☐ ☐

Dilution factor correctly calculated (sample load volume, syringe and bag dilutions, can pressurization(s))

☐ ☐ ☒ ☐ ☐ ☐

Correct amount of sample analyzed (i.e. sample not over-diluted)

☐ ☐ ☒ ☐ ☐ ☐

Spectra verified - documentation of spectral defense included (Section 5A of eCVP pkg)

☐ ☐ ☒ ☐ ☐ ☐

TICs resemble reference spectra

☐ ☐ ☒ ☐ ☐ ☐

TICs between duplicate samples are consistent

☐ ☐ ☒ ☐ ☒ ☐

Checked samples for trends (i.e. Influent vs. Effluent, Field Dups, Field/Trip Blank, etc.)

☐ ☐ ☒ ☐ ☐ ☐

Data for multiple analyses of sample(s) has been evaluated for comparability of results

☐ ☐ ☒ ☐ ☒ ☐

Special units for all samples in the final report are correctly calculated

☐ ☐ ☒ ☐ ☒ ☐

Manually entered results checked (i.e. TPH/NMOC)

☐ ☐ ☒ ☐ ☐ ☐

Chain of Custody verified for any special comments (i.e. different compounds/RLs, action levels)

☐ ☐ ☒ ☐ ☐ ☐

Chain of Custody scanned correctly

☐ ☐ ☒ ☐ ☐ ☐

Verify sample id's vs. chain of custody

☐ ☐ ☒ ☐ ☐ ☐

Date MDL(s) performed per instrument(s) 9/22/09

☐ ☐ ☒ ☐ ☐ ☐Samples pressurized w/ appropriate gas (N<sub>2</sub> or He)☐ ☐ ☒ ☐ ☐ ☐☐ Other (i.e. Tedlar bag, cartridge, sorbent)☐ ☐ ☒ ☐ ☐ ☐

Final pressure consistent with canister size (6L vs. 1L)

☐ ☐ ☒ ☐ ☐ ☐

Verify receipt pressures

☐ ☐ ☒ ☐ ☐ ☐

Verify canister ID #'s

☐ ☐ ☒ ☐ ☐ ☐

Final invoice amount correct (adjusted for TAT, Penalties, Re-issue Charges etc.)

☐ ☐ ☒ ☐ ☐ ☐

MDL date(s) present for all instruments utilized

☐ ☐ ☒ ☐ ☐ ☐

Client LUMEN report reviewed for accuracy and completeness

☐ ☐ ☒ ☐ ☐ ☐

Notes: (to include: noting samples with QA/QC problems, Blanks with positive hits, narratives, etc.)

A/R:

M/Q:

A<sub>1</sub>/A<sub>2</sub>

R/T

M

Q

(Analytical Review/Date)

(Reporting Review/Date)

(Management Review/Date)

(QA Review/Date)

A<sub>1</sub>:

R:

A<sub>2</sub>:

T:

Note (1): Please check all the appropriate boxes. Indicate "NA" for any statement that does not apply.

Rev. 02/20/09

Note (2): Management reviewer and reporting reviewer must be separate individuals.